

**DISABILITY LEAVE/MODIFIED DUTY ASSIGNMENT DURING
REHABILITATION FROM INJURY OR ILLNESS
(22.2.2)**

Policy Statement: It is the policy of the Delaware State Police to provide reasonable accommodation to allow an injured or ill employee to retain salary and benefits. Reasonable accommodation may be in the form of workers' compensation benefits, sick leave and other accrued leave, permanent or temporary reassignment or job-restructuring, or a combination of these functions.

In the event that the illness or injury is or becomes permanent or exceeds the temporary benefits provided and the employee is unable to perform essential job functions, the policies regarding pension or separation shall apply.

I. Workers' Compensation

- A. Pursuant to 29 Delaware Code, Section 5933, as amended by House Bill No. 474, and 19 Delaware Code, Section 2321, (see Procedure for Handling Workers' Compensation Claims) when an employee qualifies for workers' compensation benefits and is medically restricted from performing a job function assigned by the Division, the employee, for a period of three months from the date such compensation begins shall not be charged sick leave and shall receive from the State the difference, if any, between the total of: (1) the amount of such compensation, (2) any disability benefits received under the Federal Social Security Act, and (3) any other employer supported disability program, and the amount of wages to which the officer or employee is entitled on the date such compensation begins, provided the injury or disease for which such compensation is paid is not the direct result of such officer or employee's misconduct and occurs during a period of employment for which the employee is entitled to receive wages.
- B. In the event that a uniformed employee qualifies for workers' compensation as described above for an injury or illness which occurs in the performance of their duties and was not performing a function or duty that is considered administrative in nature, the employee shall be entitled to these benefits for a period not to exceed twelve months.

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- C. In the event of a job-related injury, the provisions of the policy containing the procedures for handling a workers' compensation claim will be followed. It will be the responsibility of the troop commander/section chief to ensure that the injured employee's supervisor notifies the Personnel Office of the incident and completes the Supervisor's Report of Investigation.
- D. Following the period of time described above, either three months or twelve months from the date compensation begins, an employee may use sick leave to provide full regular pay during periods when he or she is paid less than full pay under workers' compensation benefits. Such leave will be charged in proportion to the difference between workers' compensation pay and full pay. Employees cannot take sick leave with pay in excess of the hours actually accrued to date.
- E. Following the expiration of sick leave, the Superintendent, at his discretion, may authorize the employee to use accumulated vacation and/or compensatory time to allow the employee to remain on the active payroll. In the event that authorization is not provided, payment of accumulated leave will be made according to the appropriate general order consistent with the provisions of the contract between the Department and the Delaware State Troopers Association and consistent with the provisions of the Fair Labor Standards Act.
- F. In the event that a period of one calendar year has not occurred from the date of absence due to a compensable illness or injury to the expiration of all available leave, the Superintendent may authorize an unpaid leave of absence to provide a minimum of a one year rehabilitation period prior to separation from the Division. The Superintendent, when he believes it to be in the best interest of the Division, may approve subsequent leaves of absence of up to six month intervals, however, in no case may the total absence, paid or unpaid, exceed two years from the initial date that compensation began.
- G. Upon expiration of all approved leave, the employee shall be separated from the Division. Retirement benefits may be provided in accordance with 11 Delaware Code, Chapter 83, Subchapter II and III, or 29 Delaware Code, Chapter 55.

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II. Sick Leave

- A. If an employee is medically restricted from performing a job function assigned by the Division, the employee may use accumulated sick leave to remain on the active payroll of the State. Upon the expiration of all accrued sick leave, the Division may authorize the employee to use accumulated vacation leave and/or compensatory time to continue full pay and benefits.
- B. In unusual circumstances where the Superintendent deems it in the best interest of the Division, and when the employee has in excess of five years service, and when a high probability exists that the employee will return to full service within a reasonable period, the Superintendent may authorize the employee to borrow ahead up to fifteen days of paid sick leave after all accumulated sick leave, compensatory time, and vacation is exhausted.
- C. In the event that a period of one calendar year has not occurred from the date of the original absence due to the illness or injury to the expiration of all available leave, the Superintendent may authorize an unpaid leave of absence to provide a minimum of a one year rehabilitation period prior to separation from the Division. The Superintendent, when he believes it to be in the best interest of the Division, may approve subsequent leaves of absence of up to six month intervals, however, in no case may the total absence, paid or unpaid, exceed two years from the initial date of absence due to the injury or absence.
- D. The Division may require additional documentation and may request that the employee be examined at the Division's expense by a physician of the Division's choice to obtain a second opinion.
- E. Upon expiration of all approved leave, the employee shall be separated from the Division. Retirement benefits may be provided in accordance with 11 Delaware Code, Chapter 83, Subchapter II and III, or 29 Delaware Code, Chapter 55.
- F. In the event of an extended or non-job-related injury of five days or more, the troop commander/section chief will notify the appropriate Field Operations Officer and the Personnel Office as soon as practicable upon learning of the non-job-related illness or injury and outline the particular circumstances. Appropriate documentation will be completed by the administrative

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lieutenant/section chief within five work days and forwarded to the Director of Personnel. The employee will be responsible for following the restrictions established by medical authorities both when working and off duty. Disciplinary action may be taken against an employee who becomes at risk for further injury by violating medical restrictions or by performing physical activities or other functions away from the job which the employee has been restricted from performing on the job or which the employee has professed an inability to perform.

- G. Troop commanders/section chiefs with employees on less than full duty status will make weekly personal or telephonic contact with the employee. This contact will enable the troop commander/section chief to evaluate specific operational needs. During the contact, the troop commander/section chief will ascertain if the employee (or his/her family) is in need of assistance from the Division in any manner. If a request for assistance cannot be accomplished by the troop commander/section chief, the Director of Personnel shall be advised. In all cases, documentation of the contact will be placed in the employee's personnel file at his/her work location.
- H. On the date of the employee being unable to perform in a full duty status and continuing for the duration of the disability, any prior approval for additional part-time employment will be rescinded immediately. The employee has the option to resubmit a request for approval for part-time employment to the Superintendent through the appropriate Field Operations Officer, advising how working part-time will not aggravate the medical condition or injury.
- I. On the date of the employee being unable to perform in a full duty status and continuing for the duration of the disability, they are not permitted to work special duty jobs unless permission is granted from the appropriate Field Operations Officer. The employee must advise how working special duty jobs will not aggravate the medical condition or injury.

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III. Reassignment/Job-Restructuring

- A. If an employee suffers a permanent or prolonged disability which requires a restriction from performing job functions, the Division will attempt to provide reasonable accommodation through reassignment, job-restructuring, or reallocation of marginal job functions to co-workers.
1. Basic police functions including, but not limited to, the activities listed below are considered essential job functions of all uniformed positions regardless of rank and/or assignment and therefore must be able to be performed with or without accommodation except during a temporary rehabilitative period as described in Paragraph IV:
- a. Driving a patrol vehicle for extended periods.
 - b. Getting in and out of vehicles.
 - c. Affecting a forcible arrest; possible physical confrontations (wrestling with suspects).
 - d. Biannual firearms recertification which involves shooting a semi-automatic pistol and shotgun from standing and kneeling positions during the course of a training day.
 - e. Climbing obstacles and traversing rough terrain quickly.
 - f. Manual traffic control involving prolonged standing and requiring mental and physical alertness and dexterity.
 - g. Working under stressful and dangerous conditions, in inclement weather and for prolonged periods without the benefit of rest of meal breaks, and working rotating shifts.
 - h. Communicating effectively with people of various socioeconomic backgrounds and effectively utilizing sense perception to discern various stimuli of danger and to maximize operational effectiveness.

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2. The required physical fitness examination measures the physical ability necessary to perform the activities noted above and other essential functions of all uniformed positions. Since the fitness examination measures the necessary level of aerobic capacity, muscular strength, muscular endurance, flexibility, and other physical attributes necessary to safely perform essential job functions, the fitness test itself is considered an essential job function.
 3. The required medical examination measures the officer's ability to safely and effectively perform the activities noted above and other essential job functions.
- B. Reasonable accommodation is a modification of a job assignment or the work environment that allows an individual with a disability to perform the required work assignment. Job restructuring may involve reallocating or redistributing the marginal functions of a job. By definition, the essential functions of a job are not subject to reallocation or redistribution.
- C. It is the responsibility of the disabled employee to identify, through medical documentation, that he or she has a disability which can be accommodated without an undue hardship being placed upon the Division and further, that the disability does not prevent the employee from performing all essential functions of a Delaware State Police officer (for uniformed positions) and of the assigned job function (for all positions) with or without reasonable accommodation. The employee will be required to furnish medical documentation from his/her physician(s) to the Director of Personnel immediately following the fifth day of absence from work or full duty status and periodically thereafter. The documentation shall include, but not be limited to:
1. the reason for the disability.
 2. the specific length of disability.
 3. the prognosis for recovery to full duty status.
 4. a statement indicating the employee's fitness to resume the duties of full time employment (see Paragraph III) and any physical or other limitations.

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- D. On the date of the employee being unable to perform in a full duty status and continuing for the duration of the disability they are not permitted to work special duty jobs unless permission is granted from the appropriate Field Operations Officer. The employee must advise how working special duty jobs will not aggravate the medical condition or injury.
- E. The Division may require additional documentation of its choosing from a doctor, psychologist, rehabilitation counselor, occupational or physical therapist, independent living specialist, or other professional with knowledge of the employee's functional limitations.
- F. Following review of all documentation and discussion with the employee and the Director of Personnel, the Superintendent shall determine whether or not the requested accommodation will be made. On occasion, competent medical authorities may differ in opinion as to the extent of the injury/illness and the employee's ability to return to duty. When there is a difference of opinion, the Superintendent has the discretion of directing the employee back to work in either a position compatible with rehabilitation or a regular assignment. Any employee directed back to work by the Superintendent may apply for a disability pension if otherwise qualified. The Pension Board has the option of granting or denying the employee's request. Denying the employee's request for pension will result in the employee returning to work as directed or having his/her employment terminated.

IV. Temporary Disability

- A. A temporary disability is a non-chronic impairment that does not last for a long time, has little or no long-term impact and/or does not substantially limit an employee's major life activities including the ability to function in their assigned position. Temporary disabilities are normally accommodated by injured leave (see Section I), sick leave (see Section II), or temporary reassignment or job modification (see Section III).
- B. It is the responsibility of the employee to identify, through medical documentation (see Paragraph II-E), the extent of the disability and the prognosis including an estimated date for full recovery. As described in

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Sections III E and III F above, the Division may seek and follow additional opinions and will thereafter determine the level that the employee may be accommodated.

- C. Due to the limited operational impact on the Division, essential job functions as well as marginal job functions may be reassigned or temporarily suspended in order to allow the employee to work during the period of rehabilitation.
 - D. On the date of the employee being unable to perform in a full duty status and continuing for the duration of the disability they are not be permitted to work special duty jobs unless permission is granted from the appropriate Field Operations Officer. As with outside employment request, the employee must advise how working special duty jobs will not aggravate the medical condition or injury.
 - E. A temporary impairment which continues beyond a period of one (1) year from the date of the original absence or the date that the employee was unable to perform all required job functions shall be deemed a permanent disability and the policies contained herein shall apply. No pyramidal application of benefits between temporary and permanent disability is implied or will be allowed.
- V. This policy is intended to comply with the employment provisions of the Americans with Disabilities Act (Title I of the ADA) which is effective for the Division of State Police on July 26, 1992, and with 19 Delaware Code, Chapter 7, Subchapter III, Handicapped Persons Employment Protections. Pursuant to these laws, an employee who believes that he or she is being discriminated against as a result of a disability as defined by these laws may contact the Equal Employment Opportunity Commission and/or the Anti-discrimination Section of the Division of Industrial Affairs, Department of Labor of the State of Delaware.

Revised 4/30/94

PROCEDURE FOR HANDLING WORKERS' COMPENSATION CLAIMS

1. An employee who is injured as a result of a job related injury or illness must immediately notify their supervisor. The supervisor is then to contact the Workers' Compensation representative in the Personnel Office to provide the following information regarding the incident. The new First Report of Injury form will be completed in the Personnel Office. Copies will be sent to the injured employee and their troop commander/section chief.

- A. Injured employee's name, home address, home telephone number, marital status, and number of children under age 18
- B. Date and time of injury and exact location of injury
- C. The employee's shift schedule for the week injury occurred
- D. Nature of injury
- E. What was employee doing and how did injury occur?
- F. Was medical treatment required? If so, where and name of attending physician. (If treatment is required at a later date, Personnel must be notified.)
- G. Has employee returned to work, if not, when expected? (Physician's certification required for lost time.)

2. The Supervisor's Report of Investigation is to be completed by the supervisor of the injured employee and submitted to the Personnel Office within three working days. If the injury is a result of a motor vehicle accident, a copy of the accident report must be sent in lieu of the Supervisor's Report of Investigation.

The questions are self explanatory, comments should be as specific as possible. This report will be submitted to the State Risk Manager in the Insurance Coverage Office; therefore, it should be typed or printed neatly in black ink.

3. The Medical Center of Delaware and Kent General Hospital have established procedures for treating non-emergency, occupational injuries (i.e., back and neck injuries, abrasions, minor burns, lacerations, contusions, and sutures).

These facilities specialize in occupational injuries and are able to expeditiously treat patients.

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- A. Employees in New Castle County are to be directed to the MCD Occupational Health Services at the Wilmington Hospital, (main entrance - hallway to the left). Operating hours are Monday through Friday from 0730 to 1630 hours; therefore, employees injured during non-operating hours can go to either Christiana or Wilmington Hospital Emergency Rooms.
- B. Employees in Kent County are to be directed to Health Works/Kent Medical Care (corner of State Street & Rt. 13, in Dover). Operating hours are Monday through Friday from 0730 to 1600. When Health Works is closed, Kent Medical Care is open Monday through Friday until 1900 hours, and Saturday and Sunday 0900 to 1700 hours. During non-operating hours employees can go to Kent General Hospital.
- C. Regardless of the time of day severe injuries will be treated at any of the above emergency rooms.

4. If the employee is unable to return to work, the employee must have the attending physician provide them with a disability certificate. The certificate must state the injury, support the reason why the employee is unable to perform duty as a result of the injury, and the approximate length of disability. The certificate must be submitted immediately to the Personnel Office.

If the employee is unable to return to full duty; however can return to restricted duty, the disability certificate must state same.

5. A release to full duty certificate must be submitted to the Personnel Office within two working days after the employee returns to work.

6. Personnel must be notified immediately when an employee is using injured leave. In the event an employee has a recurrence which is directly related to a prior injury, and additional injured leave is necessary, the employee's supervisor is to notify the Personnel Office immediately that the employee is using injured leave. A physician's certificate must be submitted for the injured leave used, same as 4 and 5 above.

7. Pursuant to 29 Delaware Code 2321, no compensation shall be paid for any injury which does not incapacitate the employee for a period of three days from earning full wages, but if incapacity extends beyond the period of three days compensation shall begin on the fourth day after such incapacity.

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8. Temporary total disability compensation will be awarded and sick leave will be charged for the incapacity as follows:

Day of Injury (DOI) - injured leave

1st day of injured leave used - 1 day sick and injured leave from DOI

2nd day of injured leave used - 2 days sick and injured leave from DOI

3rd day of injured leave used - 3 days sick and injured leave from DOI

4th day of injured leave used - 3 days sick - injured leave from DOI and

injured leave used on 4th day

5th day of injured leave used - 3 days sick - injured leave from DOI and

injured leave used on 4th and 5th day

6th day of injured leave used - 7 days injured leave

A. Temporary total disability compensation checks will be made payable to the injured employee by The PMA Management Corporation (the Division's Workers' Compensation carrier).

B. Employees will keep the Workers' Compensation checks and future paychecks will be reduced by the amount of the workers' compensation awarded.

9. Temporary total disability compensation will not be awarded for employees' office visits to physicians or therapy treatments; therefore, time will be charged to sick leave. It is suggested that the employee schedule such appointments during off duty hours.

10. All medical bills, relating to Workers' Compensation claims, are to be sent to the Personnel Office.

A. At the time of treatment, the employee is to advise the physician or hospital that it is a Workers' Compensation claim, and they are to submit all bills to the Personnel Office.

B. To prevent duplication in billing, do not give a Blue Cross, Principle Health Care, or any other medical insurance number.

11. Vacation and sick leave will continue to accrue while the employee is on injured leave.

12. The determination as to whether an officer is performing a hazardous duty assignment when injured, rests with the Insurance Commissioner. However, it is incumbent upon the investigating officer to provide the necessary documentation for the Personnel Office to challenge decisions which may be felt to be inappropriate.

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UNIFORM STAFFING CHART

AS OF AUGUST 19, 2004

ACTIVE OFFICERS AVAILABLE

|

583

OFFICERS ON TERMINAL LEAVE

|

6

Last Day WorkedPension Effective

Cpl/3 D. DeJuliis	03-15-04	09-06-04
Sgt. K. Phillips	05-28-04	09-08-04
Cpl/3 E. Parseghian	04-16-04	10-08-04
Sgt. R. Ashley	03-19-04	01-01-05
Sgt. E. Mayfield	07-31-04	05-01-05
Capt. G. Warren	07-16-04	06-01-05

MEDICAL

|

16

Rehabilitation

-- 11

Bordley, Boyce, David, Galbreath, Griffin, J., Kleckner
Lavere, Maher, M., Mullett, Price, Warren, W.

Off Duty

-- 3

Eby, Tsai, Warner, R.

Paternity and/or FMLA

-- 2

Brown, S., Duffy

OTHER

|

0

Leave of Absence

-- 0

SUSPENSION

|

3

With Pay

-- 2

Maher, B., McGuire

Without Pay

-- 1

Gaddy

ACTIVE MILITARY LEAVE

-- 7

|

7

Conaway, D., Groce, C., Hamm,
Jefferson, Mullarkey, Ptak, White

RECRUITS

|

0

AcademyFTO

Last Class - 07/02

0

0

Current - 09/03

0

0

TOTAL OFFICERS ON PAYROLL

|

615

LEGISLATED STRENGTH (effective 07/01/04)

|

611

General Funding

-- 560.4

Special Funding

-- 50.6

SPECIAL FUNDING BREAKDOWN

ASF

-- 21.2

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Sussex County

10.0

Sussex County (8 @ 65% ASF, 8 @ 35% GF)

5.2

VLEU

6.0

NSF

-- 29.4

D13711

MCSAP

3.4

School Resource Officers

26.0

Brandywine

4.0

Colonial

2.0

Laurel

1.0

Sussex Tech

1.0

Caesar Rodney

2.0

Delmar

1.0

NCC Consortium

3.0

Woodbridge

1.0

Cape Henlopen

1.0

Indian River

2.0

Red Clay

2.0

Christina

3.0

Lake Forest

1.0

Seaford

1.0

Vacant - New

1.0 (FY03)

ELIGIBLE FOR IMMEDIATE TERMINAL LEAVE

|

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Yeomans John A (DSP)

From: MacLeish Thomas F (DSP)
Sent: Friday, June 25, 2004 9:02 AM
To: Yeomans John A (DSP); Tupman Michael (DOJ)
Cc: McNatt Lisa E (DSP)
Subject: RE: FTU Staff update

John, I believe a second opinion is appropriate for these officers and the Division. What is the protocol concerning obtaining that second opinion? I have to believe in the past with similar cases we sent troopers for a second opinion. Please let me know. If you are in today I would like to see you. Tom

-----Original Message-----

From: Yeomans John A (DSP)
Sent: Friday, June 25, 2004 8:57 AM
To: MacLeish Thomas F (DSP); Tupman Michael (DOJ)
Cc: McNatt Lisa E (DSP)
Subject: RE: FTU Staff update

I have a drafted light duty letter but was wondering if we should include language relative to them pursuing retirement or if that should be in an additional document. I guess technically if they are deemed not fit for duty with no chance of recovery we should direct them to retirement immediately.

However, I have a second concern about Dr. Green's evaluation in the sense that should we as an employer offer them an opportunity to pursue a second opinion? Dr. Green is not an ENT specialist. Or do we not go down that road at all?

REDACTED

Upon the Lt.Colonel return I was hoping we could all meet and discuss a continued game plan with respect to this group of officers. Considering the litigious propensity of this group of officers I want to make sure we minimize the Division's liability while providing the proper care and resources to our officers.

Mike, I would like to forward you the Light duty letter for your review and recommendations.

Thanks, John

-----Original Message-----

From: MacLeish Thomas F (DSP)
Sent: Thursday, June 24, 2004 4:57 PM
To: Yeomans John A (DSP); Tupman Michael (DOJ)
Subject: RE: FTU Staff update

You are right John, we need to notify them in writing. Mike when drafting the divisional policy to allow up to a year and then an additional year, were those time periods given to allow for an eventual return to full duty status? In this case according to the information we have now this condition is not reversible. Will that change the time periods?

-----Original Message-----

From: Yeomans John A (DSP)
Sent: Wednesday, June 23, 2004 9:19 PM
To: Tupman Michael (DOJ); MacLeish Thomas F (DSP)
Subject: FTU Staff update

Mike and Tom, want to bring you up to speed on the FTU staff situation and obtain some legal direction as well. Both Wayne Warren and Kurt Price have been deemed Not "fit for duty" relative to their hearing loss by Dr. Aaron Green of Health works. Dr. Green is our contracted fitness for duty physician. Dr. Green indicated to me that the hearing loss is irreparable with no recovery. He indicated that an attempt to accommodate with a hearing device would be futile. He interviewed both officers and reviewed their hearing tests and historical data.

Both officers have been placed on light duty. They were notified verbally. I believe it may be in the Division's best interest to notify them in writing. In drafting a letter of notification another concern or issue came to mind.

Our light duty/ disabled policy is not real clear on this but in the event the employee will not recover or there is no chance for return to full duty status should the employee remain with the Division on a light duty status for

an extended period? The policy states the employee may remain on light duty status for one year at which time the Superintendent may extend an additional 12 months but under no circumstances will the employee remain beyond two years while on light duty status.

My sense is they are looking to apply for a disability pension.

On another note Dr. Williams was subcontracted by Omega to review their hearing tests relative to Occupational exposure. He has indicated that their hearing loss is not associated with Occupational (range) exposure.

I would like your thoughts on this. I would like to meet when our schedules allow to discuss further.

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Yeomans John A (DSP)

From: Tupman Michael (DOJ)
Sent: Friday, June 25, 2004 8:12 AM
To: MacLeish Thomas F (DSP)
Cc: Yeomans John A (DSP)
Subject: RE: FTU Staff update

The light-duty time periods are flexible to allow for the possibility that a Trooper may recover from physical injury and return to full-duty. Where the doctor(s) certify that will never happen, then the Trooper must apply for a disability pension. The two-year maximum period of light duty deals with the situation where the medical reports are inconclusive, and there is still hope. After two years, the Division can legitimately presume that full recovery is not in the cards. During the pension process, the Pension Board may require an independent medical examination by the Board's doctor, whose opinion sometimes differs from the other doctors (this happened with Ron Tate). That may complicate the process, but the pension disability process should at least be started.

-----Original Message-----

From: MacLeish Thomas F (DSP)
Sent: Thursday, June 24, 2004 4:57 PM
To: Yeomans John A (DSP); Tupman Michael (DOJ)
Subject: RE: FTU Staff update

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I would like your thoughts on this. I would like to meet when our schedules allow to discuss further.

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Fitzgerald, Robert

From: Foraker Christopher D (DSP)
Sent: Monday, January 05, 2004 3:47 PM
To: MacLeish Thomas F (DSP)
Cc: Eckrich Paul (DSP); Warren Gregory A (DSP); Davis Ralph H (DSP)
Subject: RE: Emergency Range Issues

Lt. Colonel MacLeish,

On Monday, December 29, 2003, Larry Toplack of the Mayfran Corporation flew out from Ohio to repair the clutch pulley and chain and to get the dredge conveyor system back up and running. It was obvious to Mr. Toplack that the conveyor adjustment points had been tampered with to the point of the system being completely out of balance as well as the limit switch being removed from its anchor point causing it to be inoperable. The limit switch was in place to shut the system down to prevent the chain and the clutch from destroying each other which eventually occurred. Mr. Toplack expressed that the clutch was under warranty, however, the system was not to be adjusted by anyone outside of Mayfran personnel. Mr. Toplack stated that the conveyor system has numerous extremely sensitive adjustments points along with fine tolerances. When one adjustment point is altered, a domino effect flows through to all the remaining adjustment points causing the system to go out of synchronization. I hope that Mayfran will be generous to the DSP and not charge us for the work that Mr. Toplack conducted due to DSP making adjustments to the system after they had expressed no adjustments were to be made without Mayfran's approval. Mr. Toplack was adamant that no one should make any adjustments or alterations to the system other than Mayfran trained and certified engineers and technicians.

Once Mr. Toplack was able to replace the clutch and chain and re-balance the system, he attempted to re-start the system. The conveyor was bound-up and unable to move. Mr. Toplack re-wired the motor to reverse the belt to free itself. Once the belt was backed up 6 to 8 feet, Mr. Toplack again re-wired the motor to go forward. The drag belt dredged out foreign material from out of the conveyor pan that was not lead bullet or frangible bullet material. Mr. Toplack stated that it looked like a large amount of material that looked very similar to the galvanized chain that we have in storage behind the bullet trap. It was suggested that someone may have attempted to sabotage the system by placing the chain into the conveyor, dropping it between the drag chain and the conveyor pan. This caused the drag chain to lock up against the conveyor pan. Due to the limit switch being disabled, the clutch was unable to shut down causing the clutch sprocket and chain to destroy each other rendering the conveyor system inoperable.

After all the foreign material was eventually dredge out, Mr. Toplack made several more adjustments and left the system up and running prior to his flight back to Ohio on Tuesday, December 30, 2003. A maintenance agreement between the DSP or Facilities Management and Mayfran is a must in order to keep this specialized mechanical system up and running. At this point, the dredge conveyor system is in operation, however, there is still the issue of the filtration, pumps and sprayer jet heads and a maintenance program to be put in place to care for that system as well. I expect to hear back from Environmental Solutions this week with a proposal to combat the frangible material and to maintain that area of the operation.

As a direct result of a possible sabotage situation, and after consulting with Lt. Davis, I contacted Jon Warren of Facilities Management and had all the exterior doors at the FTU re-keyed and had the alarm codes changed on the security system.

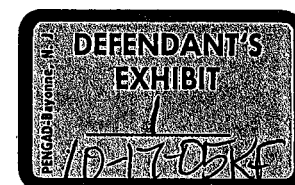
Thank you for your attention in this matter and look forward to any further direction you may suggest in our efforts to maintain the safe and healthy operations at the Firearms Training Facility.

Sgt. Christopher D. Foraker #606
 NCOIC, Firearms Training Unit
 391 Clark Farm Rd.
 Smyrna, DE 19977
 Office 302-659-6020
 Fax 302-659-6019
 Pager 302-247-5606

A - 504.1

-----Original Message-----

From: MacLeish Thomas F (DSP)
Sent: Monday, January 05, 2004 7:06 AM
To: Foraker Christopher D (DSP); Warren Gregory A (DSP)
Cc: Davis Ralph H (DSP); Eckrich Paul (DSP)



Subject: RE: Emergency Range Issues

Sgt. Foraker,

I read your email this morning. Have you received any cost estimates? Captain Warren please prepare a written report that addresses the concerns Sgt. Foraker has presented and propose possible solutions.

-----Original Message-----

From: Foraker Christopher D (DSP)
Sent: Friday, December 19, 2003 7:20 PM
To: MacLeish Thomas F (DSP); Eckrich Paul (DSP)
Cc: Warren Gregory A (DSP); Davis Ralph H (DSP)
Subject: Emergency Range Issues

Gentlemen,

On Thursday, December 18, 2003, I discovered that the clutch pulley sprocket of the conveyor (drag or dredge system) has been damaged and the drive chain has been broken. This has brought the dredging system to a complete stop. I immediately contacted Mr. Charles Nester of Savage Range Systems who originally built the system. Mr. Nester referred me to Mr. George Murnyak of Mayfran International, from Mayfield Village Ohio who removed the old conveyor system and replaced it with the new drag / dredge conveyor system. Mr. Murnyak explained that the only thing under warranty is the clutch of which he could ship one to us. I asked who would be putting the new clutch assembly on and getting the chain and conveyor system up and running again. He said he would get back to me on that. I did not hear back from Mr. Murnyak today even after leaving phone messages for him to return my calls. I will again call on Monday, December 22nd to attempt to make contact with Mr. Murnyak.

On December 1, 2003, when I resumed command of the Firearms Training Unit, Capt. Warren, Lt. Davis, Sgt. Ashley and myself conducted a transition meeting at the range in which Sgt. Ashley explained in detail the conditions of various facets of the range. When I inquired of the condition of the bullet recovery system, Lt. Davis, Sgt. Ashley and myself responded to the rear of the range to observe the current operations of the system. Sgt. Ashley explained the condition of the new drag conveyor system that replaced the original bullet conveyor system and commented that it was functioning well, as it was designed. As Sgt. Ashley explained the proper functioning of the system, he took wrench in hand and started making several adjustments to the clutch and motor sprockets to adjust and tighten the slack of the chain. The chain is now broken and the clutch sprocket is destroyed. The mechanical operation of this very expensive equipment should not be left for amateurs in the mechanical field to tweak but for professionals who have the training and experience to make proper scientific and calculated adjustments and measurements when necessary. My expertise as well as the entire FTU staff lies in firearms, officer safety and force training. We do not possess the training, skills and knowledge or the time necessary to properly maintain the system at it's optimal performance.

I have met with Mark D'Allesandro, Physical Maintenance Trades Supervisor of Facilities Management. Mr. D'Allesandro has observed the conditions and the labor intensive work that is required on a daily basis to keep the mechanical aspect of the bullet recovery system operational. I also explained to Mr. D'Allesandro that once the industry has perfected the performance of the frangible slug ammunition, the Division will complete the transition over to lead free, non-toxic slug and buck shot shotgun ammunition. This frangible shot volume will triple the amount of sludge that currently is clogging pumps, screens, filters and sprayer jet heads. He has also noted that regardless of completing the transition to frangible ammunition, lead contamination will always be present and a health danger due to the lead lined deceleration chamber. Mr. D'Allesandro stated that the smooth operation of bullet trap maintenance would require a full time professional that would also need to be equipped with the proper protective gear and trained in the handling of hazardous lead and other heavy metals.

Cpl/3 B. Kurt Price expressed to me his concerns elevating 6 points on his blood lead level after he and Sgt. Ashley completed work on the bullet trap. Cpl/3 Price's lead level rose from a 5 to 11 and only dropped one point to a 10; 8 months later. Cpl/3 Price expressed such a concern that he would consider a transfer from the FTU if his level does not descend into the single digits. Cpl/3 Wayne Warren's lead levels have elevated 3 points. Both Cpl/3 Warren and Cpl/3 Price have expressed concerns over the health risks involved in conducting maintenance on the bullet trap and bullet recovery system. Bay Health Physician, Dr. Green has expressed to Cpl/3 Price that the petroleum found in the water that helps to lubricate and preserve the bullet trap is a penetrating agent that is used as the vehicle to transport the lead through the skin and into the blood stream upon human contact. I concur with my colleagues that this is an unnecessary health risk and that the maintenance of the bullet trap and recovery system should be left to the trained professionals who can operate in this environment safely.

With the permission of Capt. Warren and Lt. Davis, I have contacted Joseph Farrell of the Environmental Solution Group, the hazardous materials recovery company that disposes of the hazardous materials produced by the bullet trap. After explaining to Mr. Farrell all of the same operational components and health risk factors as was

explained to Mr. D'Allesandro, along with the increased volume of frangible shotgun ammunition, Mr. Farrell concurred that professionals would be needed for the safe and efficient operation of the entire bullet trap system. Mr. Farrell and a team of corporate engineers are attempting to devise a plan that will prevent the clogging of the filters, screens and sprayer jet heads along with recycling fresh filtered water back into the system to prevent clogging and the destruction of pumps. He will forward a proposal to me in the near future.

Our firearms curriculum and yearly schedule do not afford us down time and we will be resuming firearms training on January 5, 2004. This is the make-up for the fall in-service shoot and the beginning of recruit firearms training.

I thank you in advance for your immediate attention in this matter and look forward to your direction as soon as possible.

Sgt. Christopher D. Foraker #606
NCOIC, Firearms Training Unit
391 Clark Farm Rd.
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Pager 302-247-5606

Tracking:

Recipient

MacLeish Thomas F (DSP)
Eckrich Paul (DSP)
Warren Gregory A (DSP)
Davis Ralph H (DSP)

Read

Read: 1/5/2004 5:10 PM

Read: 1/6/2004 2:34 PM
Read: 1/6/2004 9:54 AM

Foraker Christopher D (DSP)

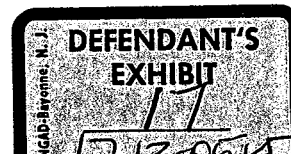
To: Foraker Christopher D (DSP)
 Friday, January 09, 2004 7:58 PM
 From: Warren Gregory A (DSP)
 Cc: Davis Ralph H (DSP)
 Subject: Range Health issues and Departmental liability

Captain Warren,

We are experiencing significant air flow problems at the range. I have personally witnessed the problem since I have returned to the FTU on December 1, 2003. Corporals Warren and Price have expressed that this problem has been in existence for many months and has only been "band aided" over time when complaints have been made. Shooters can be standing on the 7 yard line firing and you can be standing at the back of the range, nearly 30 yards behind the shooters, and smell the gunpowder as the air flow brings the smoke back behind the shooters and instructors. Corporal Warwick expressed that at one point the smoke was so dense that he was barely able to see a shooter on the firing line. The staff here has relayed to me that a firm was brought in by Facilities Management in the Spring or Summer of 2003 to attempt to correct the problem. They were unsure of the name, however, believed that it began with the name of Chesapeake. The representative of that company stated that the current air handler system was not designed to move the volume of air in a reasonable time frame and was not designed to pull the air and heavy metal particulates upwards defying gravity. I do remember that the State hired the engineering firm of Clark Nixon to come in to evaluate the range air flow and propose a fix for the problems we were experiencing. From my understanding of what Clark Nixon proposed, the State did not heed their advice.

At this point we are firing lead free, non-toxic, frangible handgun projectiles comprised of a copper dust compound. The bullet is designed to pulverize upon impact to steel. At present, we are experiencing a few different problems which I will identify as follows:

1. A reddish haze in the air that is suspended throughout the range when the bullet strikes the bullet trap. The airborne particles are inhaled by the instructors and students. When anyone blows their nose, a large amount of the reddish debris is discharged. Students and instructors also complain of a copper penny taste in their mouth after shooting and described significant eye mucus present when awaking the following morning after a day on the range. On Thursday, January 8, 2004, I made contact with Ernest Durham, engineer for CCI / Speer, the manufacturer of the frangible bullet, to inquire as to the properties that comprise the bullet. Durham stated that the bullet is comprised of 90% copper which is indicated by the reddish haze. Durham stated that to inhale the copper is not as dangerous as to eat it. I stated that if we taste it, we must be eating it. Durham stated that you don't want to walk into the reddish cloud and you definitely do not want to eat it. I made contact with Facility Management, Physical Plant Maintenance Trades Supervisor, Mark D'Allesandro yesterday and advised him of our ongoing problem. He and Facility Management maintenance worker Tom Faison responded to the range and witnessed the visual problem with the reddish haze during weapons fire on the range. Note, that only eleven shooters were on the firing line during the observation, usually there are significantly more in upwards of twenty shooters on line during in-service training. However, with only eleven shooters, the effect was significant. Both D'Allesandro and Faison expressed that this problem needs to be corrected immediately. D'Allesandro contacted Seiberlich Trane and met with Trane technician Ron Whitehouse today to review the computer readings as well as find out if there is a damper or filter problem or some other reason for this problem. Whitehouse stated that he found a couple of supply doors leaking air which he remedied by bracing them, however, we did not experience any change on the range. Whitehouse and his supervisor from Trane will meet up with D'Allesandro at the range on Tuesday, January 13, 2004 at 0800 hrs. to conduct testing on the range in an attempt to determine where the problem lies. I have been personally involved in the range project since I was transferred into the FTU in October of 1997 and have conversed with a number of outside personnel hired or solicited by the State to advise on measures of correcting the air quality and flow problem of this facility. ALL of the persons that have passed through over the years have expressed that significant changes as was outlined by Clark Nixon would need to be completed in order to correct this issue. The range staff is under the impression that without the rapid exhaust and removal of the copper frangible particulates from our breathing air, this problem constitutes a potentially unsafe and unhealthy working environment detrimental to our good health and inconsistent with departmental goals and objectives.
2. The air quality problem is surely compounded by the fact that the wet ramp is dry in some areas due to the frangible material when wet turns to a pudding type mud that in short order causes the filter screens and the sprayer jet heads to clog and causes the pumps to fail as well. Due to the fact that cleaning out the filters / screens and the sprayer jet heads as well changing out the failed pumps greatly increases the blood lead level, this maintenance should be executed by professionals who are well versed and properly equipped in the prevention of lead exposure in a contaminated environment. This is being addressed by the professional disposal company of toxic materials, Environmental Solutions. I



have heard from Joseph Ferrell, Chemical Specialist with Environmental Solutions who stated that they are developing the plans to correct the problem. I believe this will be a large scale plan that will handle the drastic increase in the sludge when we eventually complete the transition to total lead free, non-toxic, frangible shotgun ammunition. I have provided the OS information on the frangible ammunition to Joe Ferrell and expect to hear back from him in the very near future regarding a service maintenance contract and cost.

3. The drag conveyor has failed once again, however, due to the limit switch being back in place, the chain and clutch survived the shutdown. I immediately telephoned Jay Zolcak of Mayfran Corporation of Ohio and informed him of the problem. Zolcak asked me to back off the limit switch slightly to allow the clutch to pop back in and attempt to free the chain from the problem. I did attempt this with negative results. Zolcak advised that they will confer with their design engineers and attempt to have someone flown out by Tuesday, January 13, 2004 to attempt to correct the problem. Zolcak will call the range on Monday, January 12, 2004 to advise of the plan of action.

Thank you for your immediate attention in this matter and look forward to any further direction you may suggest in our efforts to achieve a safe and healthy work environment at the Firearms Training Facility.

Sgt. Christopher D. Foraker #606
NCOIC, Firearms Training Unit
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Tracking:

Recipient

Warren Gregory A (DSP)

Davis Ralph H (DSP)

Read

Read: 01/12/2004 12:43 PM

Read: 01/10/2004 12:00 PM

Foraker Christopher D (DSP)

From: Price Kurt K (DSP)
Foraker Christopher D (DSP)

Sent: Tue 2/3/2004 3:29 PM

Cc:
Subject: Medical evaluation

Attachments:

Sir, I respectfully request a medical evaluation and testing performed by Omega medical service. Omega specializes in occupational health, and testing for environmental contamination of heavy metals and other airborne illnesses. In light of the units exposure to unknown contaminants I think this to be a better part of valor. Thank you. Kurt

[tps://owa.state.de.us/exchange/Chris.Foraker/Inbox/FTU/Medical/Medical%20evaluation.EML?Cmd=o...](https://owa.state.de.us/exchange/Chris.Foraker/Inbox/FTU/Medical/Medical%20evaluation.EML?Cmd=o...) 4/29/2004

SUMMARY AND RECOMMENDATION

In September of 1998, the Division began to use the newly completed indoor firing range. In a report presented by Clark Nexsen, dated April 14, 1999, it was noted that the airborne lead levels at the range were "high" but within NIOSH and OSHA Standards. The report also noted the blood lead levels of the instructors were increasing. This was the first time I observed the lead levels referred to as "high". I reviewed various memorandums prepared in reference to work performed on the ventilation system by Seiberlich Trane and documentation of costs for improvements made to the original system. It appears attempts to improve the ventilation system were made. I also became aware of the purchase of a floor-cleaning machine. This machine is specifically designed to clean the lead residue from the range floor subsequently removing the lead from the environment and lessening the exposure to the range personnel. However, no agreement was reached on the cost associated with disposal of the lead contaminated water. The documentation I reviewed indicates the reported problems were addressed by DAS/DFM.

I located a memorandum from Sgt. Fitzpatrick to Major McDerby advising of the blood test results for the range personnel for December of 1998, February of 1999, April of 1999 and June of 1999. The levels reported by Sgt. Fitzpatrick show an increase and subsequent decrease. It appears the blood lead levels increase during a qualification shoot and decreases thereafter. Another memorandum from Sgt. Alfred Paton, dated 01/07/00, reported on blood tests from 12/14/99. The results show a continued decrease in lead level concentration for the range personnel with exception of one member who had an increase of 5 ug/dl to 12 ug/dl (micrograms per deciliter of blood).

On July 13, 2000, I presented a memorandum to you in reference to the lead contamination at the range. The memorandum was in response to an e-mail from Sgt. Parton to Lt. Col. Waggaman dated 06/29/00. I attached the articles I reviewed in preparation of the memorandum at the time of submission. The memorandum advised Cpl. Cathell's blood lead level had gone from 20 ug/dl to 30 ug/dl. The memorandum went on to advise Dr. Green of Heathworks was forwarding a letter outlining his concerns in reference to Cpl. Cathell's blood lead level. In my memorandum to you, I

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endorsed the recommendation by Clark Nexsen to modify the range ceiling to reduce the lead in the range environment.

On August 7, 2000, I attended a meeting with members of DAS/DFM and members of the Division Public Safety. Secretary Bushweller chaired the meeting. The purpose of the meeting was to discuss the lead contamination issue at the range and decide upon a course of action. The modifications made to the range I previously referred to were reviewed. Mr. Doyle Tiller, the Indoor Air Quality Program Manager suggested the current blood lead levels of the range personnel were well within the OSHA limits and airborne lead concentration lead levels were consistently low. I subsequently was advised by Dr. Schwartz that the low airborne lead levels indicated that range personnel hygiene may be a contributor to the lead exposure problem. Secretary Bushweller directed that a medical expert be located and our range situation be evaluated. I began to search for such an expert. I received numerous research articles from Mr. Tiller and from Sgt. Paul Shavack of the Aviation Section. I also contacted other police agencies that utilized indoor firing range facilities. I began to realize the blood lead level concentration for our range personnel was consistent with those of other indoor range personnel.

On August 24, 2000, I presented a memorandum to you in reference to the use of frangible ammunition to reduce the lead levels in the range. As stated in the memorandum, the use of frangible ammunition would further lower the blood lead levels in the range personnel and reduce the environmental lead contamination associated with lead projectile bullet. This contamination requires periodic removal and has costs associated with the disposal of the HAZMAT materials.

As a result of a recent maintenance service of the bullet trap system by Savage Range Systems, Inc. eleven, thirty-five gallon barrels of lead contaminated material were collected. The current cost for removal of this material is \$180.00 per thirty-five gallon drum. The floor-cleaning machine also generates lead-contaminated water. Due to the high concentration of lead in the water, it is classified as a HAZMAT product and must be disposed of accordingly. The current price for the removal of the water is \$250.00 per fifty-five gallon drum. The floor-cleaning machine generates approximately thirty gallons of water per week.

On August 25, 1999, representatives of Savage Range Systems, Inc. conducted an inspection of the bullet trap system. The necessary maintenance was performed. We now have a contract with Savage to conduct yearly inspections and maintenance.

On October 5, 2000, I met with Dr. Brian Schwartz of Johns Hopkins University. Dr. Schwartz is a M.D., M.S. with the School of Hygiene and Public Health. He has conducted years of research on the effects of lead exposure in the workplace. Dr. Schwartz reviewed the blood lead levels of our range personnel and advised they were "not bad". He advised a blood lead level between 10 and 20 ug/dl was within the range of acceptable. He did advise achieving the lowest possible lead level was the best case scenario.

Dr. Schwartz believed improved hygiene practices would further lower the current lead levels in our range personnel. Such practices include changing into clean clothes prior to driving home. He advised the lead dust on the range personnel's clothing would be inhaled when driving in their vehicles. The range currently has a washer and dryer and personnel will begin changing into clean clothes at the range and laundering the contaminated clothes at the range. Dr. Schwartz also recommended the use of disposable respirator when any range maintenance is being performed, including sweeping the floor. These respirators resemble a surgical mask and are readily available.

Dr. Schwartz endorsed the change to frangible ammunition as a permanent solution to the lead contamination problem. For details of the interview with Dr. Schwartz refer to the labeled tab.

RECOMMENDATIONS

I offer the following recommendations, for your consideration, in giving closure to the lead exposure and subsequent contamination at the Firing Range.

- Develop a protocol for hygiene practices for Range Personnel and ensure they are enforced by the N.C.O.I.C of the Firearms Section.
 - Maintain the service contract with Savage Range Systems, Inc. for the bullet trap system.
 - Continue to use the floor-cleaning machine after each shoot.
 - Conduct blood tests for lead levels on Range Personnel on a six-month basis.
 - Change to frangible ammunition for handgun use at the indoor range.
-

INTERVIEW DR. BRIAN SCHWARTZ

On October 5, 2000, I traveled to Johns Hopkins University in Baltimore, Maryland to interview Dr. Brian Schwartz of the School of Hygiene and Public Health. Sgt. Paul Shavack, of the Aviation Section, located Dr. Schwartz. Dr. Schwartz is an expert on the effects of lead exposure in the workplace. Dr. Schwartz has conducted years of research in this field.

I related the blood lead levels of our range personnel to Dr. Schwartz. He stated the levels were within the legal limits as established by OSHA and added they were "not bad". He went on to state that blood lead levels in adults between 10 and 20 ug/dl were "not bad". I specifically asked Dr. Schwartz at what level would he state there was no adverse health risk. He replied that in science such an answer was difficult to give. He advised he could only identify the levels that were dangerous or potentially dangerous. He recommends an environment with as little lead exposure as possible.

Dr. Schwartz explained that once it enters the body, lead is absorbed into the bones in the same manner the body absorbs calcium. He stated that the body reacts to lead just as it does to calcium due to its atomic make up. He advised persons whom work in high lead environments should have an X ray fluorescence test conducted. This test is designed to determine the amount of lead that has been absorbed into the bones of a person. He stated the average bone lead concentration for a person 35-40 years old was 5-10 ppm (part per million). I asked if such a test should be conducted on our range personnel. He dismissed the suggestion immediately stating our range personnel have low blood lead levels. He demonstrated how ones bone lead level can be estimated when the blood lead level is known. A person who has a blood lead level of 15 ug/dl for one full year would have a bone lead level of 2 ppm. He stated the period of one year was defined as eight hours a day, five days a week for one year.

I asked Dr. Schwartz why there are differences in the range personnel's blood lead level given the time of exposure is often the same. He stated genetics is a factor to consider. He also noted our airborne lead levels were low and the elevated blood levels in some of the range personnel may be due to failure to employ good hygiene habits in reference to working in a lead environment.

Dr. Schwartz stressed the need to maintain hygiene safeguards while working on the range in the lead environment. He advised against the range officers sweeping the floor or being in the room while the floor was swept without a disposable respirator. In fact, all maintenance performed by range personnel should only be done with the disposable respirator and protective coveralls. I advised I would check with Mr. Doyle Tiller to determine if the disposable respirator (similar to a doctors mask) would require specialized training prior to use. He advised the limited exposure to the personnel who are on the range to qualify did not warrant the use of the disposable respirator.

Dr. Schwartz recommended the range personnel change their clothes prior to leaving the range. He stated the lead dust on their clothing could easily become dislodged from the clothing and become airborne while in the car. The dust would then be ingested. Changing from the contaminated clothing at the range would reduce the chance of carrying the lead home and spreading it to family members. I advised him the range currently has a clothes washer and dryer and the personnel would adhere to the recommendation.

Dr. Schwartz mentioned other hygiene practices and suggested range personnel adhere to a hygiene protocol. These practices appear in the data collected by Sgt. Shavack and Mr. Doyle Tiller.

Dr. Schwartz is an advocate of the change to frangible ammunition. He viewed the use of frangible ammunition as a permanent and sure solution to the lead exposure problem to range personnel and to the lead contamination problem associated with lead projectile ammunition.

FRANGIBLE AMMUNITION UPDATE

According to Sgt. Parton, the frangible ammunition has been performing similarly to the lead projectile ammunition. The frangible ammunition has the same muzzle velocity, muzzle flash, and recoil as the lead projectile ammunition. The shooting scores between the two test groups appear to be consistent.

The Savage Range System Company has advised the use of frangible ammunition would have no adverse impact on the bullet trap system.

It appears that the use of frangible ammunition would reduce the amount of lead material entering into the bullet trap system. The frangible ammunition has a ceramic projectile, which disintegrates upon impact. This would reduce the HAZMAT material currently generated. Likewise, the use of frangible ammunition would reduce the amount of lead currently introduced into the range environment and subsequently absorbed by the Range Personnel.

As previously reported, the cost of frangible handgun ammunition is approximately \$28,340.00 more per year than the lead projectile ammunition. This increase in cost is offset with the reduction in HAZMAT costs currently incurred and the lessening of lead absorbed by Range Personnel.

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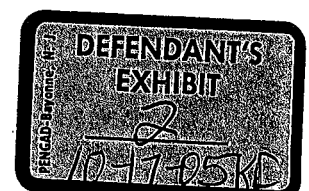
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DELAWARE STATE POLICE FIREARMS TRAINING RANGE

CURRENT RANGE STATUS AND ANALYSIS

Captain Gregory A. Warren
01/30/04

A - 511.1



Delaware State Police Firearms Training Facility

Comprehensive Report

Historical Perspective

The Delaware State Police Indoor Firearms Training Facility was identified in the late 1980's as a major priority and capital improvement project for the Division. Finally in the very early 1990's the actual planning of this construction project was initiated. The project was initially lead by Captain Cunningham who had an extensive background as a past firearms instructor with the Division. Upon his retirement, the head of the Delaware State Police Firearms Training Section, Lt. William Bryson, was assigned the task of continuing on with this new training facility initiative. A committee was formed within the Division to study the Division's need for a new indoor firearms range, what type of technology should be utilized in the building, where it should be placed geographically etc. The Committee was comprised of a wide array of Division personnel, but ultimately the Committee was narrowed down to Major Michael McDonald, Lt. William Bryson, and Sgt. Gregory Warren. The Committee researched and visited a large number of ranges already in operation and attempted to locate those utilizing the most advanced technology and best practices currently available at that time. Upon completion of a feasibility study by Clark Nexson Associates from Norfolk, Virginia, and the securing of surplus state property from Del DOT just north of Smyrna, Delaware, the request for proposals from architectural design firms interested in competing for the design and construction of the facility was undertaken. Upon completion of this interview process, a final vote was taken, at which time all three Division personnel identified above voted unanimously for the firm of Clark Nexson Associates. There were also two Department of Administrative Services personnel present at these interviews, who also placed their vote for one of the several firms competing. We as a Division, were notified a short time later that JAED Engineering from Smyrna had been awarded the project. The main concern of our committee was that the firm selected had never built or worked on any type of firearms training facility in the firm's history. The Delaware State Police Firearms Training Committee was disbanded and the Superintendent of the State Police, Col. Alan Ellingsworth assigned Lt. Bryson as the project manager representing the State Police interest in this new project. JAED Engineering proceeded with the design and construction of the project, but was plagued by multiple problems such as the elevations and grades for the building were wrong and had to be corrected, the air handling and air filtration system was placed on the roof, which in turn caused structural damage to the load bearing down on the roof. The Firearms Training Facility was finished in 1996 and the Division of State Police started its training in the facility. Since that time, the roof has constantly leaked, and the air handling system has apparently never worked correctly. The air handling system has been consulted upon by DSP personnel, Administrative Services personnel, JAED Engineering representatives and commercial HVAC persons, all in an attempt to correct the problems associated with the facilities air handling and air filtration system.

In the late 1990's many industry experts and the Federal Government started raising concerns about the amount of lead employees and personnel working in indoor firearms training facilities were being exposed to during their time spent at these indoor ranges. The decision was made during calendar year 2000 to switch over to "non-toxic" "frangible" ammunition. In January 2001 the DSP firearms training personnel started using Speer "non-toxic, frangible" ammunition, what is commonly referred to as "ceramic" ammunition. This "non-toxic" ammunition does not produce lead in the production of its firing process and the bullet itself is not lead; therefore, there is no lead to contend with when utilizing this type of round. However the configuration of the facility was not designed for "frangible" ammunition use. A further concern, is that this "frangible" ammunition contains large amounts of copper, zinc, tin, and nitroglycerin.

During the summer of 2003, Sgt. Ashley, the Non-Commissioned Officer in Charge of the range, identified a problem with the frangible material that is the byproduct of the spent bullets fired into the bullet trap system. Apparently this material which instead of falling down into the bullet trap retrieval system, falls apart into a powder like substance, which when mixed with the liquid being utilized in the bullet trap makes a sludge type material which requires disposal. Sgt. Ashley in September of 2003, worked with Major Eckrich to ascertain approval and funding for the modification of the original bullet retrieval system for a unit that would with cleats installed on the already existing conveyor belt system would be able to dredge this loose, mud like material out for disposal. However, this new design has provided the range personnel with some unanticipated hazardous material concerns and daily high maintenance concerns. Apparently the pumping system keeping the liquid in the bullet trap system must operate continuously or the sediment described above starts to harden and the system will no longer function. Also, the filters and screens in the system must be taken apart, scrubbed and cleaned daily or they become clogged, which in turn causes the sprayer heads located above the back stop section of the bullet trap to become dry. This "firing on a dry line" causes a greater amount of dust than normal to be generated from the "non-toxic, frangible" ammunition when each bullet pulverizes on impact with a dry, steel surface, the back stop and bullet trap. There are other concerns that have arisen with the use of the currently configured bullet retrieval system, such as the requirement of constant adjustments, "break downs", hazardous material exposure concerns to range personnel and even students, and lack of warranty, or warranty violations. All of the concerns just raised equate to possible "health risks" and "extremely high maintenance costs" for the facility and its operation.

Sgt. Foraker upon arrival at the range on 12/01/03 as the NCOIC, identified many of these concerns and brought those to the attention of Captain Greg Warren, the Director of Training, and Lt. Ralph Davis, the assistant Director of Training on 12/19/03. Captain Warren and Lt. Davis have in turn kept Major Eckrich, the Division's Administrative Officer and Lt. Col. MacLeish, which the Division's Training Section falls under, informed. With these problems, concerns and issues just recently coming to the attention of the Director of Training and other personnel associated with the firearm training unit's operation, a conclusion has been made that the current "non-toxic, frangible" ammunition, coupled with the current configuration of the bullet trap system, and air handling and filtration system limitations, is causing a series of complicated problems, which have compromised the integrity of both the range's bullet trap and air handling

systems. With the identification of these concerns, which are presenting Division training personnel and students with a possible health risk, the following chronology and associated recommendations are being presented to the Division's Executive Staff for action.

Problem Identification

The air handling and air filtration system is apparently not working to its maximum efficiency or effectiveness, causing the visual observation of clouds of dust and smoke to be carried backwards over the heads of those individuals shooting on the range. This dust and smoke is swirling backwards as high as the light fixtures which are suspended from the ceiling of the range. This same matter starts to fall down towards the floor and is blown back towards the shooters and envelopes those same individuals in a constant cloud of the elements contained in same. This cloud has at the current time not been tested professionally to determine its exact contents. There was some type of air test conducted in 1999, but the results of that test apparently were lost in a fire at the Department of Administrative Services a couple of years ago.

To complicate the air handling/filtration concerns, the bullet stop/catch system is now operating dry, due to the dispersion system for the liquid lubricant that normally covers the front of the bullet trap system is not functioning properly. Apparently the material the "non-toxic, frangible" bullets are made of pulverizes upon impact with the bullet stop system by design, which would generate some dust at any rate, however with the back stop operating dry, the amount of dust being generated upon each bullet hitting this back stop area and disintegrating has been compounded dramatically. The amount of dust has in fact visually covered the front and rear areas of the back stop and bullet trap areas with a coating of red/brownish dust. This dust has at the current time not been tested to determine its content. The term "ceramic" bullet has been utilized on several discussions during this inquiry, however upon review of the Material Safety Data Sheet for the ammunition in question which is currently being utilized at the range, there are multiple heavy metals contained in large quantities in each of the bullets. (Copper 60-85%, Zinc 10-20%, Tin 1-10%, Nitrocellulose 1-15%, and Nitroglycerin 0-2%). This material in granulated form, from pulverizing upon impact, has in fact clogged up the entire liquid filtration and circulation system including the filters and sprayer heads utilized in the process. The original back stop and bullet trap system installed at the range was not designed for use with "frangible" ammunition. That original system has in fact been retrofitted to sustain use with this "frangible" ammunition currently in use, but is now not working, and even when it was, required an inordinate amount of maintenance, coupled with hazardous materials exposure by those untrained required to perform those functions. The inhalation of the above described dust has caused some health risk concerns to be realized by the staff and students at the range. There have also been several breakdowns and malfunctions with the bullet trap system, one of which requires immediate attention at this time.

Investigation and Research Conducted

Captain Warren, the Director of Training for the Division of State Police, along with the assistance of Lt. Ralph Davis, Sgt. Chris Foraker, Sgt. Richard Ashley, Cpl/3 Wayne Warren and Cpl/3 Brian Price, have completed preliminary research in the areas of the